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Hearing on Counting the Change:
Accounting for the Fiscal Impacts of Controlling Carbon Emissions
Committee on the Budget
United States House of Representatives
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Thank you for the opportunity to testify today regarding the impacts of global warming legislation on the federal budget and the U.S. economy. My name is David Doniger. I am policy director of the Climate Center at the Natural Resources Defense Council (NRDC). NRDC is a national, nonprofit organization of scientists, lawyers and environmental specialists dedicated to protecting public health and the environment. Founded in 1970, NRDC has more than 1.2 million members and online activists nationwide, served from offices in New York, Washington, Los Angeles and San Francisco, Chicago and Beijing.

Our discussion of the impacts of global warming legislation must begin with a reminder of why this legislation is so badly needed. Action to curb the pollution that is driving global warming has already been delayed too long. Every day we learn more about the ways in which global warming is already damaging our planet and its ability to sustain us. As described in a full page story in the October 22nd Washington Post, dramatic new satellite pictures show that summertime arctic ice has declined by 40 percent since 1979 (Figure 1). The UN Intergovernmental Panel on Climate Change found that 11 of the past 12 years are among the 12 hottest years on record. The Greenland and West Antarctic ice sheets are losing mass at accelerating rates. Rising sea

surface temperatures correlate strongly with increases in the number of Category 4 and 5 hurricanes like Hurricane Katrina that devastated New Orleans. More wildfires like the disaster that just hit California, more heat waves, and more droughts and floods are predicted to occur as global warming continues unabated. Our own Centers for Disease Control – when not censored by the White House – calls global warming a threat to public health. Our oceans are warming and becoming more acidic, threatening the survival of corals and shellfish. Everywhere one looks, the impacts of a disrupted climate are confronting us.

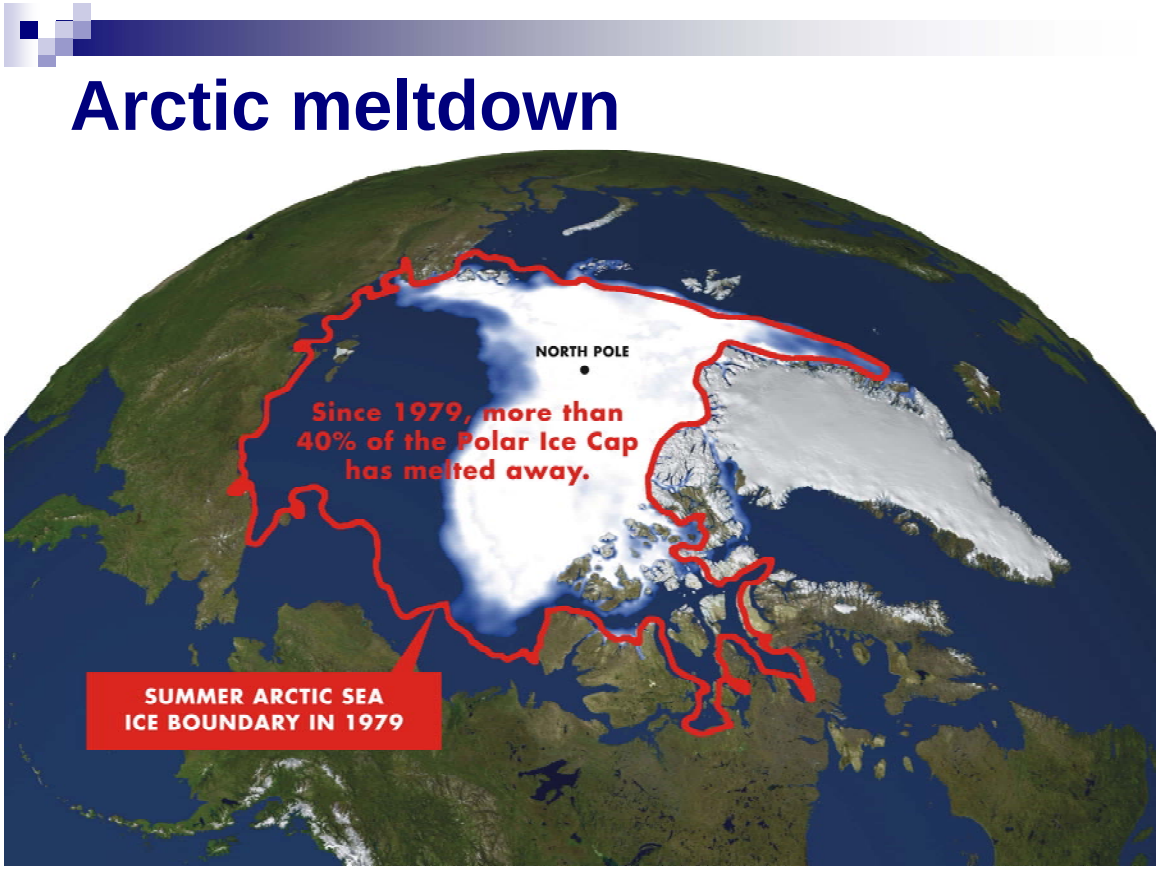

Figure 1

The reality of global warming is now a recognized fact throughout the world. Earlier this year, the United Nations Intergovernmental Panel on Climate Change (IPCC) concluded that warming of the earth is "unequivocal" and that with 90 percent certainty, humans are causing most of the observed warming. At about the same time, major businesses, including many of the world's largest companies in diverse industry sectors, banded together with environmental organizations, including NRDC, under the umbrella of the U.S. Climate Action Partnership (USCAP) to call for mandatory legislation that would reduce emissions by 60-80 percent by 2050. In April, the United States Supreme Court ruled that greenhouse gases are air pollutants subject to control under the Clean Air Act.

In the past year, stories about global warming have appeared on the covers of Time, Newsweek and Sports Illustrated. And recent polls show very high levels of concern about global warming. For instance, a recent opinion poll conducted by the Yale University Climate Center indicates that 62 percent of Americans believe that life on earth will continue without major disruptions, only if society takes immediate and drastic action to reduce global warming Finally, just this month, the Nobel Peace Prize was awarded jointly to Al Gore and to the IPCC for their work on global warming. Global warming has come of age as an issue of supreme importance.

Climate scientists now warn that we must act now to begin making serious emission reductions if we are to avoid truly dangerous global warming pollution concentrations. Because carbon dioxide and some other global warming pollutants remain in the atmosphere for many decades, centuries, or even longer, the climate change impacts from pollution released today will continue throughout the 21st century and

beyond. Failure to pursue significant reductions in global warming pollution now will make the job much harder in the future – both the job of stabilizing atmospheric pollution concentrations and the job of avoiding the worst impacts of a climate gone haywire.

Since the start of the industrial revolution, carbon dioxide concentrations have risen from about 280 parts per million (ppm) to more than 380 ppm today, and global average temperatures have risen by more than one degree Fahrenheit over the last century. A growing body of scientific opinion has formed that we face extreme dangers if global average temperatures are allowed to increase by more than another 2 degrees Fahrenheit from today's levels. We may be able to stay within this envelope if atmospheric concentrations of CO_2 and other global warming gases are kept from exceeding 450 ppm CO_2-equivalent and then rapidly reduced. However, this will require us to halt U.S. emissions growth within the next few years and then cut emissions by approximately 80% over the next 50 years.

This goal is ambitious, but achievable. It can be done through an annual rate of emissions reductions that ramps up to about a 4% reduction per year. (See Figure 2.) But if we delay and emissions continue to grow at or near the business-as-usual trajectory for another 10 years, the job will become much harder. In such a case, the annual emission reduction rate needed to stay on the 450 ppm path would double to 8% per year. In short, a slow start means a crash finish, with steeper and more disruptive cuts in emissions required for each year of delay.

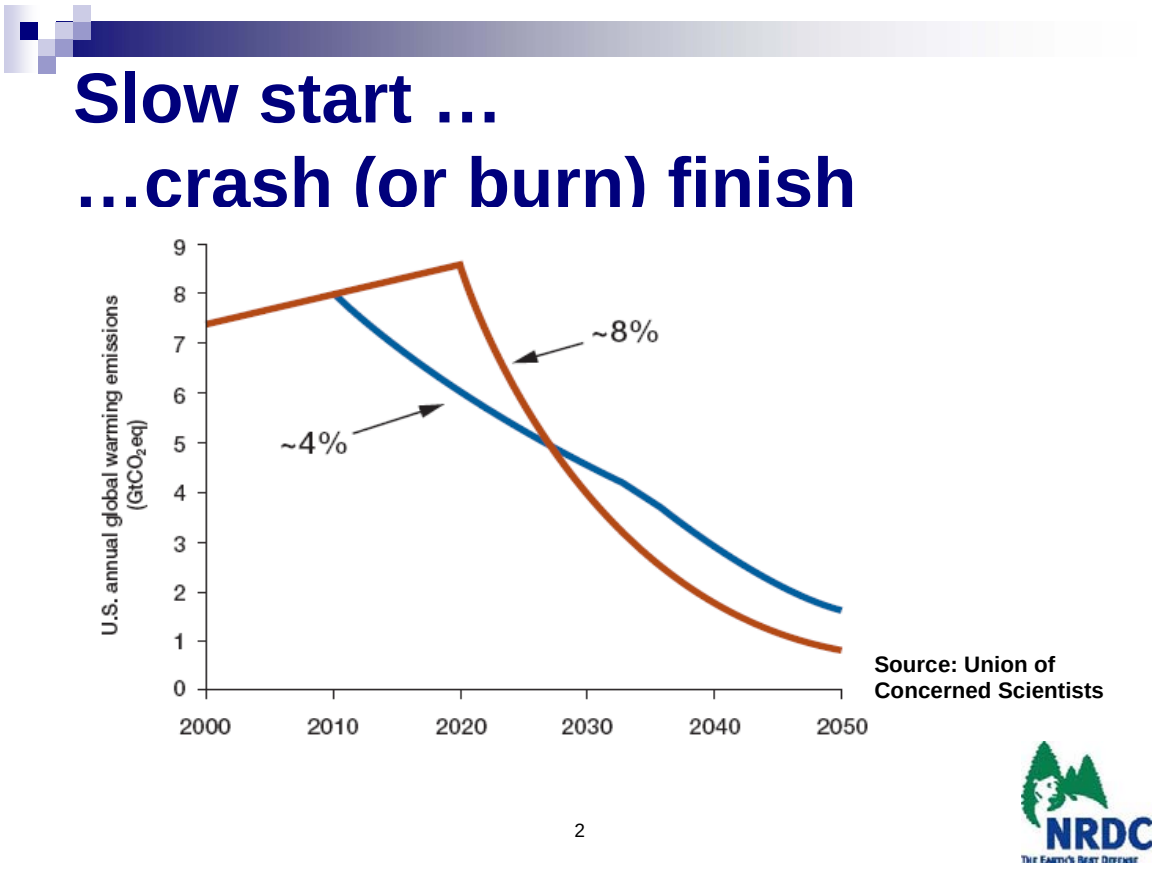

Figure 2

It is critical to recognize that continued investments in old technology will "lock in" high carbon emissions for many decades to come. This is particularly so for the next generation of coal-fired power plants. Power plant investments are large and long-lasting. A single plant costs around $2 billion and will operate for 60 years or more. If we decide to do it, the United States and other nations could build and operate new coal plants that return their CO_2 to the ground instead of polluting the atmosphere. With every month of delay we lose a piece of that opportunity and commit ourselves to 60 years of emissions. The International Energy Agency (IEA) forecasts that more than 20 trillion dollars will be spent globally on new energy technologies between now and 2030. How this money is invested over the next decade, and whether we will have the proper policies

in place to drive investment into cleaner technologies, which can produce energy from zero and low carbon sources, or that can capture and dispose of carbon emissions, will determine whether we can realistically avoid the worst effects of global warming.

We have the solutions – cleaner energy sources, new vehicle technologies and industrial processes and enhanced energy efficiency. We just lack the policy framework to push business investments in the right direction and to get these solutions in the hands of consumers.

Congress is beginning to respond. Many bills to cap and reduce global warming pollution have been introduced in the House and Senate this year. The strongest of these bills – H.R. 1590, sponsored by Rep. Henry Waxman and a bipartisan group of 142 other members, and S. 309, co-sponsored by Senators Bernie Sanders and Barbara Boxer and 19 other members – would reduce U.S. emissions 80 percent by 2050. The committees of jurisdiction are also working hard on serious legislation. In the Senate, the Environment and Public Works Committee is taking up the bipartisan America's Climate Security Act, S. 2191, co-sponsored by Senators Joseph Lieberman and John Warner, a cap-and-trade bill that would cut the global warming pollution from three key sectors – electric power, transportation, and industry –15 percent by 2020 and 70 percent by 2050, with additional policies to reduce emissions from other sources. Here in the House, Energy and Commerce Chairman John Dingell and Subcommittee Chairman Rick Boucher have started the legislative process by circulating a white paper on the scope of a cap-and-trade program to reduce U.S. global warming pollution 60-80 percent by 2050.[1]

NRDC believes a declining emissions cap and an emissions allowance trading system – combined with complementary policies such as performance and efficiency

[1] http://energycommerce.house.gov/Climate_Change/White_Paper.100307.pdf

standards and incentives for new power plants, vehicles, appliances, buildings, and renewable sources of electricity and motor fuel – is the most environmentally effective and economically efficient approach to curbing global warming pollution. (I would note that a final energy bill containing the best of the House and Senate provisions would enact some of the most important of these performance and efficiency standards, including the House's renewable electricity standard and the Senate's CAFE standard, and would be a down-payment on global warming.)

Under a cap-and-trade system, Congress creates a limited number of emissions "allowances" in an amount equal to the intended emissions cap. The cap, and the number of allowances, declines each year. Each entity that Congress designates – for example, power plants, oil refiners, major industries – must acquire and then turn in one allowance for each ton of CO_2 (or the equivalent amount of another greenhouse gas) that it emits, or that will be emitted when its products (like gasoline or refrigerants) are burned or released to the atmosphere. Tradable allowances can also be bought or sold. A cap-and-trade system thereby harnesses the marketplace to achieve the necessary pollution reductions and meet the cap at the lowest cost. Firms with low pollution control costs will make the most reductions, and firms with highest costs will make the least.

Analyzing a predecessor to the Lieberman-Warner bill, the Environmental Protection Agency found that reducing global warming pollution will have an imperceptible affect on economic output overall. If that bill were enacted, EPA found consumption of goods and services by U.S. households would increase 103% between 2005 and 2030, which is virtually indistinguishable from the 105% increase projected

without the legislation.[2] Household consumption, of course, is not the same as welfare. It does not include the value we place on reducing the risk of catastrophic storms, preserving our favorite beaches and alpine meadows, and preventing polar bears and countless other species from being driven to extinction.

Some have expressed the view that even these modest costs are too high, and that legislation should include a feature – often called a "safety-valve" – to artificially limit the operation of the marketplace. The fundamental problem with the safety valve is that it breaks the cap without ever making up for the excess emissions. Simply put, the cap doesn't decline as needed or, worse, keeps growing. In addition to breaking the U.S. cap, a safety valve also would prevent U.S. participation in international trading systems. If trading were allowed between the U.S. and other capped nations, a major distortion would occur. Firms in other countries (acting directly or through brokers) would seek to purchase the artificially lower-priced U.S. allowances. Their demand would almost immediately drive the U.S. allowance price to the safety valve level, triggering the "printing" of more American allowances. The net result would be to flood the world market with far more allowances – and far less emission reduction – than anticipated.

Although NRDC believes that the primary and most effective cost containment device in any mandatory legislation will be the cap-and-trade system itself, NRDC also supports other means of providing flexibility. Banking has long been a feature of cap and trade systems. We also support provisions allowing firms to borrow allowances with appropriate interest and payback guarantees. Banking and borrowing can smooth out unpredictable year-to-year volatility.

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[2] EPA, *Analysis of The Climate Stewardship and Innovation Act of 2007, S. 280 in 110th Congress*, July 16, 2007, http://www.epa.gov/climatechange/downloads/s280fullbrief.pdf

As members of this committee are aware, one must pay close attention to the equity of major national policies, as well as their efficiency. In this regard, a cap-and-trade system requires careful attention to how the emissions allowances are allocated, and for what purposes. Even though the overall economic cost of curbing global warming will be modest, the value of the pollution allowances created by a cap-and-trade law will be much higher: The best estimates of their value lie between $50 billion and $100 billion per year.

NRDC believes these pollution allowances are a public trust and a public asset. They represent permission to use the atmosphere, which belongs to all of us, to dispose of global warming pollution. As such, they are not a private resource owned by historical emitters and such emitters do not have a permanent right to free allowances. The value of the allowances should be used for public purposes, including promoting clean energy solutions, protecting the poor and other consumers, ensuring a just transition for workers in affected industries, and preventing human and ecosystem impacts both here and abroad, especially where they can lead to conflicts and threats to security.

If one looks back over the past few years of debate over global warming legislation, one can see a marked shift in thinking about allowance allocation. Five years ago, the common assumption was that all of the emissions allowances should simply be given away – grandfathered – to historical polluters. This is what was done with the much smaller pool of allowances for sulfur dioxide in the 1990 Clean Air Act amendments which established the cap-and-trade program to curb acid rain. The acid rain program has been extremely successful at meeting its environmental target at much

lower cost than predicted. But the grandfathering approach to allowance allocation chosen in 1990 is not appropriate for a global warming program adopted now.

Economic studies have established that in the case of global warming, 100 percent grandfathering would result in vastly enriching the regulated entities. The Congressional Budget Office has summarized this literature as follows:

> Researchers generally conclude that less than 15 percent of the allowance value would be necessary to offset net losses in stock values in both "upstream" industries (such as suppliers of coal, natural gas, and petroleum) and energy-intensive "downstream" industries (such as electricity generators, petroleum refiners, and metal and machinery manufacturers). The reason is that the cost of holding the allowances would generally be reflected in the prices that producers charged, regardless of whether those producers had to buy the allowances or were given them for free.[3]

It follows that if more than about 15 percent of the allowances are given away to polluters for free, there will be a large transfer of wealth to them at the expense of consumers. And as CBO further found the impact would be disproportionate for poor consumers, who have the least income and who must devote a larger percentage of their income than others for energy-related costs.

These insights have been borne out in real experience. The European Union deserves great credit for moving forward with a cap-and-trade program for a large fraction of their emissions in 2005, even before their obligations under the Kyoto Protocol take effect in 2008. But they have made some start-up mistakes – an experience they are learning from and we should too. Specifically, they grandfathered 100 percent of their allowances to electric power companies. Predictably, the electric companies raised electricity prices to reflect the value of those allowances, even though they

[3] CBO, *Trade-Offs in Allocating Allowances for CO_2 Emission*, April 25, 2007, p.5, http://www.cbo.gov/ftpdocs/80xx/doc8027/04-25-Cap_Trade.pdf

received the allowances for free. From these price increases the firms reaped several billion dollars in windfall profits.

In the other direction, a group of U.S. states in the northeast have established the "Regional Greenhouse Gas Initiative," a cap-and-trade program for electric power in that region. All of these states so far have chosen to auction their allowances and use them for promoting energy efficiency and other public purposes. For example, Governor Spitzer announced last week that New York will auction 100 percent of its CO_2 allowances and use the proceeds from the auction to fund energy efficiency programs and renewable energy projects.

As a result of these insights and experiences, there is more and more acceptance that the bulk of the allowances must go to public purposes, not private enrichment. Still, the battle is not yet entirely won. In this body, there are some who still speak of grandfathering nearly all of the allowances. And in the Senate, while the Lieberman-Warner bill eventually devotes most allowances to a variety of public purposes – promoting clean energy solutions, protecting the poor and other consumers, ensuring a just transition for workers in affected industries, and preventing human and ecosystem impacts both here and abroad, especially where they can lead to conflicts and threats to security – it still grandfathers too many allowances to power companies and industries at the outset and takes too long to phase out that grandfathering. We are working cooperatively with the sponsors and others to improve their bill.

Note that in this discussion I generally have said "public purposes" rather than "auction." I put it this way in order to focus on the ends before the means. It is possible to directly and efficiently allocate allowances to achieve many of the public purposes to

which they should be put. Here are some examples found in bills introduced either in this or prior Congresses:

- Promoting renewable energy: Congress could write legislation that includes an appropriate formula for allocating bonus allowances to firms that produce electricity from wind or other renewables. The recipient would sell the allowances into the marketplace to realize their value. The incentive would function just like the current production tax credit for wind: the developer of a new wind farm would receive incentive revenue in proportion to its electricity output.
- Encouraging Carbon Capture and Storage: Congress could include a bonus allowance formula to encourage power companies to adopt carbon capture and storage technology. As above, the power company would receive incentive revenue from selling the allowances in the marketplace.
- Retooling the Auto Industry: To help domestic automakers retool and reposition for a changing market, Congress could establish an allowance allocation formula that functioned like a consumer rebate to encourage the purchase of low-emitting vehicles.
- Greening Buildings, Equipment, and Appliances: Likewise, allowance formulae could be written to promote faster deployment of highly energy-efficient appliances and construction of highly energy-efficient buildings.
- Demand-Side Management and Climate Rebates: Allowances also could be allocated to local electric and gas distribution utilities on condition that the proceeds from selling them into the marketplace are used to fund energy efficiency and rebate programs for their consumers.

These same objectives could be achieved, of course, by auctioning the allowances and using the revenue to support tax credits, directed spending, or appropriations aimed at the same results. Direct allocation of allowances for these public purposes, however, has the advantage that it can be accomplished in a single piece of legislation. It can also create incentives that planners and investors will see as stable and predictable over multi-year periods. To achieve the same degree of stability and effectiveness through an auction approach, it would be critical to put the allowance revenue into a dedicated trust fund mechanism that is sheltered from the uncertainties introduced by annual appropriations.

There are some public purposes, however, that can be more effectively and efficiently pursued through such measures as tax credits or programs administered by federal or state agencies. For example, as Robert Greenstein of the Center on Budget and Policy Priorities will elaborate, in order to protect low-income consumers from a disproportionate distributional impact, the most effective and efficient approach may be a combination of (1) raising the Earned Income Tax Credit, and (2) delivering climate rebates through the electronic benefits card already used to deliver benefits to poor Americans. Likewise, an efficient way to deliver a climate rebate to moderate-income consumers would be through an increase in the standard deduction for income taxes.

Another example of an important public purpose is transition assistance for workers and communities that otherwise would be disproportionately affected by a climate program. Assistance programs provided through government agencies could be funded by statutorily directing a certain percentage of auction revenues.

Likewise, programs to protect our nation's health and our land and ocean resources, which are already suffering serious global warming impacts, could be funded with auction revenues. Indeed, a dedicated trust fund for the protection of ocean resources was a recommendation of the non partisan Pew Oceans Commission in 2003.[4]

Whether the means to achieve these public purposes is direct allowance allocation or the use of auction revenues, it is important to put things on a stable footing. Allocation formulae, tax credits, and dedicated funding can provide such stability. These are preferable to year-to-year appropriations, which introduce more uncertainty. Whether one is thinking of technology investors or low-income beneficiaries, there is significant value in establishing stable and predictable incentives and benefits.

Finally, while the resources that can be made available in a cap-and-trade program to fight global warming may seem significant, so are the public needs associated with the program – promoting new technology, protecting low- and moderate-income citizens, providing transition assistance for workers and communities, and addressing both domestic and international adaptation needs. Therefore, regardless of other chronic budget needs that could make a claim to these resources, it is critically important given the magnitude of the threat from global warming that the top priority for their use be the success of this program.

Let me briefly mention a couple of additional issues in designing a national cap-and-trade system. Some contend we should do nothing until China and India agree to act. To the contrary, the best way to bring China and India on board is to take leadership. We are the world's most powerful economy. We are responsible for more of the global warming pollution now in the atmosphere than any other country. We have the most

[4] http://www.pewtrusts.org/our_work.aspx?category=130.

technological know-how. The best way to get global action is to start acting at home, and to negotiate reciprocal action from other countries.

We've done this before. Twenty years ago, in 1987, industrial nations took the lead in a binding treaty to phase-out ozone-depleting CFCs. In just three years, in 1990, developing countries came on board. Led by China and India, they accepted binding limits on their own CFC production. Since then we've marched together – developed and developing – ever since, and have already eliminated 95 percent of the ozone-depleting chemicals. Just this past September, China and India agree to a new round of mandatory cuts in ozone-depleting chemicals. What's missing on global warming is our leadership. We are the only major industrial country that has refused to limit its own emissions. It's time to act.

At the same time, Congress can design legislation to encourage other nations to join in action to reduce greenhouse gas emissions, and to protect American businesses and workers from unfair competition if specific nations decline to cooperate. Under a proposal advanced by American Electric Power and the International Brotherhood of Electrical Workers, the United States legislation would instruct the President to negotiate for "comparable" emissions reductions from other emitting countries within 8 years of enactment. Countries failing to make such commitments would be required to submit greenhouse gas allowances for certain carbon intensive products. NRDC supports this provision, while bearing in mind that the U.S., as the world's greatest contributor to the burden of global warming pollution already in the atmosphere, needs to show leadership in meeting the global warming challenge.

Thank you for the opportunity to testify and I would be pleased to answer any questions that you may have.